

Amendments to the Specification:

Please replace the paragraph beginning at page 1, after the heading "Cross-Reference To Related Application," with the following amended paragraph:

This application claims ~~priority from provisional application serial no.~~ the benefit of U. S. Provisional Application No. 60/429,316, filed November 27, 2002, the entire contents of which is hereby incorporated by reference.

Please replace the paragraph beginning at page 12, line 19, with the following amended paragraph:

The arrows 17 indicate the current flowing between electrodes ~~[[64]]~~ 9 and ~~[[70]]~~ 13. The current injection electrodes 9 and 13 are used to inject current into the first body part, such as a right breast, and to remove current from the breast, respectively. The voltage measurement electrodes 11 and 15 are used to measure the voltage that is produced across the breast tissue 19, by the current. By using separate electrode pairs for current injection and voltage measurement, series impedance associated with measurement leads is ignored, and a more accurate measurement of impedance can be produced. However, stray impedances can produce artifacts in the experimental results that could affect the accuracy of the diagnosis of disease of the breast based on the tetrapolar impedance measurements. The correction module 16 can be used to account for these stray impedances.

Please replace the paragraph beginning at page 14, line 5, with the following amended paragraph:

In one embodiment, the magnitude correction table 24 includes a list of calibration impedance magnitudes, $|Z_{cal}|$, and associated magnitude correction factors $C_{mag}(|Z_{cal}|)$. Similarly, the phase correction table includes a list of calibration impedance magnitudes, $|Z_{cal}|$, and associated phase correction factors $C_{ph}(|Z_{cal}|)$. The correction module [[13]]_16 interpolates values from the correction tables to obtain the appropriate magnitude and phase correction factors.

Please replace the paragraph beginning at page 15, line 1, with the following amended paragraph:

The first body part module [[22]]_12 and the second body part module [[24]]_14 are placed on the respective body parts of the patient. The impedance module [[16]]_18 generates currents and measures resulting voltages. These measurements yield raw impedance values of the patient. These raw values are subject to errors arising from stray impedances in the patient and in the measurement apparatus. The correction factor, which includes the magnitude correction factor and the phase correction factor, is used to correct the magnitude and the phase of the raw impedance, respectively, as is described in greater detail below. The corrected impedances may then be used to diagnose the possibility of disease.

Please replace the paragraph beginning at page 15, line 20, with the following amended paragraph:

The calibration apparatus 30 is used during a calibration phase, in which the calibration apparatus 30 obtains the correction data of the tables 24 and 26. During the calibration phase, instead of connecting the impedance module [[16]]_18 to a patient, the impedance module [[16]]_18 is connected to the first body part electrical model 32.

The first body part electrical model 32 is an electrical device that models the first body part.

Please replace the paragraph beginning at page 16, line 4, with the following amended paragraph:

The electrode module 33 includes a multiplexer similar to one present in the first body part module 12 or the second body part module 14. In addition, the electrode module 33 includes electrodes that correspond to the electrodes in the first body part module [[13]] 12 that connect to the first body part of the patient. The variable interface resistor 34 models the resistance of electrical components of the first body part module 12, the patient's skin, and any gel used to establish a contact therebetween.

Please replace the paragraph beginning at page 16, line 12, with the following amended paragraph:

Figure 5 is an electrical circuit 40 that corresponds to the calibration apparatus 30 of Figure [[3]] 4. The electrical circuit 40 includes a load 42 having a known resistance, R_{load} . The load 42 corresponds to the body part electrical model 32, which models the body part. The electric circuit 40 further includes a source 44 of balanced alternating current, two shunts 50 and 52, and two interface resistors 54 and 56.

Please replace the paragraph beginning at page 18, line 17, with the following amended paragraph:

Figure 7 shows a plot 62 of C_{phase} versus $|Z_{\text{cal}}|$. The data corresponding to this plot 62 can be stored in the memory of [[the]] a computer [[12]] (not illustrated) as the phase correction table 26.

Substitute Specification:

As required by the Examiner's communication, a Substitute Specification, including claims, in compliance with 37 CFR 1.52, 1.121(b)(3) and 1.125 is attached. The Substitute Specification corresponds to the original specification, including claims, but has the claims on a separate sheet of paper. The Substitute Specification also incorporates the above amendments in response to the objections by the Examiner concerning reference characters and the drawings. In addition the Substitute Specification corrects typographical and other errors due to inadvertence, and does not add any new subject matter to this application. A clean version and marked-up version are provided as required.

Attachment: Marked-Up Copy
Clean Copy